

# The Chemical Age

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## The National Economic Fabric

**I**N a single week this country prepared itself in the most marvellous way to receive any shock from warlike action to which it might be subjected. No praise is too high for those who were responsible for the smooth working of a transformation as complete and as rapid as any in recorded experience. Criticism even of detail in the doings of the first week of September is not only futile but ungracious.

The transformation being so rapid and so complete, it now becomes imperative to pause and consider and plan a little farther ahead. The splendid spirit of the whole nation has caused every individual to feel that he or she must be doing something. This admirable sentiment has itself promoted a good deal of exceptional dislocation, much of which will prove on reflection to have been unnecessary and some unwise. Many good people have interpreted National Service as a sort of general post and the universal rush has been to do something different. Such general unrest was bound to accompany the vast schemes associated with evacuation and all the novel details of Air Raid Precautions.

The inevitable losses associated with these happenings have fallen first upon the shopkeeping and business classes; the taxpayer will come in later. Many thousands of retailers, their suppliers and all who depend upon them, have patiently and loyally witnessed the sudden, if temporary, destruction of years of business building. They do not complain, nor does this Journal utter any complaint on their behalf. They recognise the necessity for what has been done, and they appreciate the inevitability of a certain amount of overdoing. They do not ask for any spectacular bureaucratic schemes for saving them and doing their business for them. They only wish, now that the first great task is accomplished, that there shall be a wider recognition of its consequences and a general effort to mitigate them.

It should be made much clearer to the general public that, failing some definite special call for services of proved necessity, there is no better national service at this stage than to "stay put." For years past little has been heard in public of the claims of tradesmen, professional men, and all the many suppliers of the multifarious things and service which go to make life comfortable and even possible. These people

and their work are the warp and weft of the national economic fabric. It is upon their prosperity that all the public services are founded.

For a week the nation has perforce thought only of public services without regard to the foundations, but there is surely no doubt that the innate wisdom of the nation will now apply itself to these deeper considerations. In the short space of one week the British people have accomplished war work which took years to perform in 1914-18. Of that everybody is justly proud. They have also placed a much larger proportion of their normal living in more serious difficulty than at any time in 1914-18, and the aim should now be to hasten to relax such part of the emergency restrictions as is now seem to be redundant to war requirements.

The steadiness of the business community in face of unprecedented difficulties, has been beyond praise. The dislocation that the war has caused in the national life has been far more severe than it was in the first days of the last war. Then employers had to cope with indiscriminate recruiting for the New Armies. Far more serious this time have been the sudden gaps caused by the unexpectedly large demands of Civil Defence. The necessary adjustments of staff have not been easy, but the problem has been faced, and in most cases solved, by the exercise of patience and goodwill. Panic decisions have fortunately been few. Nothing could be a better index of the spirit of the industrial and commercial classes than the appearance of their trade journals in the first week of the war. Whereas the national newspapers had assumed very slender dimensions, there was no revolutionary change in the appearance of THE CHEMICAL AGE and similar publications. Some credit for this, it will be admitted, goes to the publishers in endeavouring to maintain the

essential services they have been accustomed to give to their constituency in the past. In the main, however, it cannot be doubted that it is the business community itself which, by its sanity and courage, made something like normal publication of the trade press possible.

They recognise that the trade press is a branch of national service, and have in large measure continued their support of it by every means in their power. They were only applying to their external relations the principles on which they are running their own businesses.

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## NOTES AND COMMENTS

### Carrying On With Confidence and Poise

**T**O say the least these are exciting times. Uncertainties were never so great—orders and regulations are falling as thick as leaves in Vallambrosa. The chemical industry is at present faced with the difficult task of operating under constantly changing conditions. A close study of the position, however, reveals a unanimity of support for the necessary restrictions introduced by the Government which is highly praiseworthy. The chemical industry has a tremendous duty to perform in the great struggle before us, but we are convinced that in keeping with other important industries, it will play a worthy part in ensuring a successful outcome of the struggle. But a moment's reflection will suggest how firmly rooted in the industrial fabric of the nation is its history, its traditions and its prestige, bringing that atmosphere of confidence and poise so essential to a well-balanced outlook in these difficult days. And now a personal note in conclusion. There is necessarily much curtailment of the activities which it is one of the chief functions of this journal to record, while the Defence Regulations place certain restrictions upon some classes of technical and commercial information. Readers are asked to bear with us in these difficult circumstances, while correspondents are urged to expedite the despatch of copy so that it may reach this office as early in the week as possible. For the benefit of those who have made inquiries regarding any possible change of address, we would point out that Bouverie House, Fleet Street, E.C.4, continues to be the headquarters of THE CHEMICAL AGE and allied publications.

### Red Cross and St. John Appeal

**I**N the grave issues which now confront the British Empire, the British Red Cross Society, of which H.M. The Queen is President, and the Order of St. John, have decided to work together as they did in the last war with results which are still within the memory of the public. With this object a Joint Emergency Committee has been set up, comprising an equal number of members of each body. It is impossible to foresee exactly where relief for the sick and wounded will be most needed, or in what form. But it is certain that there will be vast suffering and distress, and that the relief of the sick and wounded of His Majesty's forces, and of the civilian population, will call for much voluntary effort and financial support. Considerable voluntary help has already been secured, but it remains to find the money necessary to pursue the work. A fund is being opened by the joint bodies. Donations should be sent to The Hon. Sir William H. Goschen, K.B.E., hon. treasurer, Red Cross and St. John Fund, at Messrs. Coutts and Co., 1 Park Lane, London, W.1.

### A Letter from Germany

**T**HAT German Socialist organisations should be sending "anti-Hitler" messages to the workers in other countries is natural enough, but that unrest does exist in other circles of the Reich is confirmed by a letter published in *The Yorkshire Post*. This was addressed to a West Riding textile firm from one of its German agents and reads:—

"Dear Sirs,—I take this opportunity to write to you a few confidential words. The fact that two children of one of my principals are being kept in a concentration camp may be of minor importance.

"Once again we are about to lose British friendship, so often readily given to us and so often disregarded by evil powers. But however evil they are, they cannot stop us from remembering friendship that once we received and we appreciated. Our hearts break at the prospect of what we may have to face. At this moment we can only confine ourselves to one wish, that our present separation may be short, and may lead to an everlasting bond in the end."

### Air Raid Casualties

**T**HE absence of air raids during the first weeks of war has been an unexpected but welcome feature, at a time when so many adjustments in business and civil life are still being made. While it is always better to err on the side of caution—and mere optimism is unjustified—the effect of air raids has been somewhat exaggerated in the public mind. A Spanish doctor, writing in the *British Medical Journal*, stated that in Barcelona, which in thirty months was subjected to 250 air raids, the total number of people killed was about the same as in motor accidents during that period. The chances of an individual being killed in an air raid are about the same as of being killed in a street accident.

Furthermore, the same doctor stated that psychologically the civilian population was more affected by lack of food than by enemy bombs, and people waiting in food queues would not take shelter during an air raid for fear of missing their turn. There is not likely to be an acute food shortage in England however long the war lasts.

### Crystallite Growth During Carbonisation

**A**MONG the many papers prepared for presentation to the Division of Gas and Fuel Chemistry of the American Chemical Society at its meeting in Boston this week was one on "Crystallite Growth During Carbonisation," by Professor H. L. Riley, hon. secretary and director of the Northern Coke Research Committee, King's College, Newcastle-upon-Tyne, Mr. H. E. Blayden, senior chemist of the Committee, and Mr. A. Taylor. An abstract of their paper states that the investigations of crystallite growth during carbonisation in the temperature range 400° to 1,300°. *J. Chem. Soc.*, 67, (1939) have now been extended to include one American and two Welsh anthracites, lignin and an Irish peat, and carbonisation temperatures up to 2,200°. The anthracites and the peat all show interesting anomalies in their crystallite growth curves. The anthracite crystallites show a decrease in the *c* dimension as the carbonisation temperature is increased from 400° to 900°. This has been interpreted as due to disruption of the crystallites. The peat coke crystallites show a very rapid growth in the *c* direction between 700° and 1,000° which is probably due to a catalytic effect.

### President and Chemist

**A**T a moment when the attention of the world is directed towards the gallant stand which Poland is making against German aggression it is of interest to remember that M. Moscicki, president of Poland since 1926, is a chemist of international repute. M. Moscicki, like many other patriots in a country where national politics were rigorously discouraged for so many generations, did not enter public affairs until late in life. By that time he was a chemist of considerable renown and had made important discoveries in connection with the oxygenisation of the nitrogen in air. He was professor of electrochemistry at Lwow Polytechnic and organiser of the Chemical Research Institute in Poland.

## War-Time List of Reserved Occupations Chemical and Allied Industries Affected

THE Ministry of Labour published the first war-time list of reserved occupations on September 8. The list is a revision of earlier schedules and contains some new occupations as well as replacing others which have been removed from the original schedule. The schedule is, however, subject to revision from time to time.

In an explanatory memorandum the Ministry of Labour points out that the list is compiled on an occupational basis, and, unless otherwise stated, is applicable to all persons in the occupation named, without regard to the industry in which they are employed. A man who follows an occupation listed in the revised schedule cannot be accepted for whole-time service in any of the national defence services unless he is below the age stated. A number of men under 25 holding or studying for degrees and diplomas will be dealt with by the technical committees associated with the university joint recruiting boards.

The schedule includes the following occupations affecting the chemical and allied industries (the age of reservation is given in parenthesis):—

**Artificial Manure, Fertiliser Manufacture.**—All workers (other than labourers) in productive processes (30).

**Asbestos, Slag Wool (Silicate Cotton) Production.**—All workers (other than labourers) in productive processes (30).

**Brewing, Malting and Spirit Manufacture.**—All workers (other than labourers) in productive processes (30).

**Carbon Brush, Crucible, Arc Lamp Carbon Manufacture.**—All workers (other than labourers) in productive processes (30).

**Cement Manufacture.**—Foreman, charge hand, wet miller, miller (washmills), kiln burner (30).

**Chemicals and Galenicals Manufacture (including Drugs).**—Foreman, charge hand, process worker, process man in chlorine and bleach manufacture (25); manufacture of other heavy chemicals, manufacture of fine chemicals and galenicals, solvent and other chemical-recovery plant worker, still-house plant operator (30).

**Coke-oven Worker.**—Foreman, assistant foreman, charge hand (25).

**Coke-oven Plant Worker.**—Heater, heats attendant, machine-man, over charger, coal charger, charger driver (coke oven), tapman, carboniser, doorman, door shutter, lidman, plugger up, dauber, luter, coke drawer, retort drawer, coke pusher, discharge driver, cokeman, coke elevator man, coke-quenching plant attendant, coke-cooling plant attendant, coke-conveyor man, coke cutting and screening plant attendant, coke screener, coke-washing plant attendant, coke-grading plant attendant, breeze-washing plant attendant, valve-man, assistant valveman (30).

**Enameller, Japanner, Lacquerer, &c. (Metal and Metal Goods).**—Foreman, charge hand, enameller (non-vitreous), enameller (vitreous), japanner, lacquerer, fuser (vitreous enamelling), stover, inspector, viewer (25).

**Explosives Manufacturer and Filling.**—Gunpowder, gun-cotton, explosives manufacture. All workers (other than labourers) in productive processes, including packer (high explosives) and senior runner. Small arms ammunition and fireworks manufacture: Examiner (small arms ammunition), all other workers (other than labourers) in productive processes (25).

**Glass Worker.**—All workers (other than labourers) in productive processes in glass making and in glass-house, glass processing (except scientific glass working, including tap grinding) (25); scientific glass working (including tap grinding) (21); glass decoration (25); optical glass making, lens and prism making (including optical and ophthalmic lens making), quartz (silica) glass making (21).

**Glue, Size Manufacture.**—Dope maker, dope mixer, all other workers (other than labourers) in productive processes (30).

**Grease, Glycerine Manufacture.**—All workers (other than labourers) in productive processes (30).

**Ink Manufacture.**—All workers (other than labourers) in productive processes (30).

**Laboratory Assistant, Recorder (Skilled)** (25).

**Linoleum Manufacture.**—Foreman, charge hand, oil boiler, oil oxidiser (leading hand), cement maker, mixer-weigher, scratcher, colour matcher, calender man (first and second hand), stove man (first and second hand) (30).

**Marine Oil and Animal Fat Processing.**—All workers (other than labourers) in productive processes (30).

**Metal Manufacture.**—Aluminium manufacture (18); brass, bronze and other alloy manufacture (18); copper manufacture (18); lead manufacture, leaden goods maker (18); pig iron manufacture (blast furnace) (18); steel manufacture (18); wrought iron manufacture (puddling furnace) (18); zinc manufacture (18); other non-

ferrous metal manufacture (18); iron and steel rolling (excluding sheets) (18); non-ferrous rolling (including sheets) (18); tinplate mill worker, sheet mill worker (18); tube manufacture (iron and steel) (18); tube manufacture (non-ferrous) (including all extension processes) (18); miscellaneous workers in metal manufacture, rolling and tube drawing, not specified elsewhere (18); metal manufacture (including rolling and tube drawing), labourer (25); metal polisher, bobber, wrapper, etc. (25).

**Mica Processing and Micanite Manufacture.**—Foreman charge hand (25); micanite building machine operator, drum sanding machine operator, tube winder (hand), commutator veering builder (30).

**Packer (Laboratory Furnishers)** (30).

**Paint, Colour, Varnish and Cellulose Lacquer Manufacture.**—All workers (other than labourers) in productive processes (30).

**Patent Fuel Manufacture.**—All workers (other than labourers) in productive processes (25).

**Petroleum Production, &c.**—Petroleum drilling, foreman, charge hand, driller, toolpusher, pumpman, derrickman, cathead-man, rigman (25).

**Plastic and Plastic Goods Manufacture.**—Stock material (including sheet, rod, tube and moulding manufacture).—Foreman, charge hand, inspector, laminated sheet and tube tester (moulding powders), autoclave operator, still operator, reaction vessel operator, dope maker (photographic, &c., film) (30); casting machine operator (photographic, &c., film), transparent resin sheet maker (25); compounder, weigher, blender, dry mixer (30); dough mixer, mill-man masticator, mixer-rollerman (25); crusher, disintegrator, grinder, pulveriser, sifter, dough filter press operator, pressman (filter press), calender hand, roller man (calender machine), sheeteer, planer, slicing machine operator, seasoning stover, pickler, sheet moulder, sheet flattener, polishing pressman, steamer, extruding machine operator, extruding driver, forcer, impregnating, coating, varnishing, lacquering machine operator (plastics), reeler (plasticised paper and fabric rewinding), slitter (plasticised paper, fabric, film), tape cutting machine operator (30).

Block press operator (casein, celluloid), press operator (laminated plastics), tube winder (bushing insulator, laminated plastics) (25).

**Moulding and Pressing:** Foreman, charge hand (30); inspector, hydraulic press moulder (compression) power (mechanical), press moulder (25); injection moulder (compressed air, hydraulic, electric), hot moulder (laminated plastics), tabletting, pelleting machine setter-operator (30).

**Machining and Finishing:** Foreman, charge hand, inspector (bushing, insulator, laminated plastics), sawyer (30); turner (bushing insulator, laminated plastics) (25); assembler finisher (bushing insulator, laminated plastics), driller, miller: wire banding machine setter operator (30).

**Seed Crushing, Oil Milling, Refining, Oil Cake Making, and Mixed Animal Food Manufacture.**—All workers (other than labourers) in productive processes (25).

**Scientific, Mathematical, Optical, Electrical, Instrument and Apparatus Maker.**—Foreman, charge hand (21); scientific instrument maker (general hand), physical and chemical apparatus maker, optical instrument maker, mathematical and measuring instrument and apparatus maker, electrical instrument maker, nautical instrument maker, meter maker (not electrical) (23); lens moulder, graduator, divider, calibrator, tester (18); compass adjuster (21); other workers not specified above (18).

Assembler, scientific instrument and apparatus (including mathematical, optical, surgical, dental, electrical, &c., instruments), foreman, charge hand, spectacle-frame maker (23); assembler (scientific, &c., instrument making other than cameras) (18); assembler (camera), mounter (23).

**Scientific Worker.**—Research worker, bacteriologist other than member of the medical profession, biochemist (plant and animal) other than member of the medical profession, chemist (analytical, research, &c.), excluding pharmacists, engineering student (post-graduate) engaged full time on research work (21), entomologist, geologist (professional), histologist (other than member of medical profession), hydrobiologist, metallurgist, meteorologist, mineralogist, mycologist, parasitologist, pathologist (other than member of the medical profession), pest control research worker, pharmacologist (other than member of the medical profession) (25); physicist (21); physiologist (plant and animal, other than member of the medical profession, scientific research worker (full time) in a university, technical college, research association, research institute, or research laboratory (25).

**Tar Distillation, Coke Oven By-Product, Low-Temperature Carbonisation and Hydrogenation Plant.**—Works foreman, assistant foreman, charge hand (25); scrubber, yardman, purification attendant, tar, ammoniacal liquor plant attendant, naphthalene plant attendant, oxide plant attendant, dehydration plant attendant, benzol extraction plant attendant, benzol recovery plant attendant, tester, laboratory attendant, valve man, assistant valve-man (30).



## Further Emergency Plans

### Measures Taken by Chemical Organisations

THE following are further details of emergency measures taken by organisations associated with the chemical and allied industries:—

We understand from VICTOR BLAGDEN AND CO., LTD., Plantation House, Mincing Lane, London, E.C.3, that they are carrying on at that address until a situation arises which makes it impossible for them to continue business there, when their temporary address will become Cecils, Chigwell, Essex.

Insofar as it may prove possible under war conditions, the whole of the business activity of JOHNSON MATTHEY AND CO., LTD., 73-83 Hatton Garden, London, E.C.1, will continue to be controlled and conducted from the usual office and works addresses.

The INSTITUTE OF FUEL's temporary address is: Stangrave Hall, Godstone, Surrey. They now have a telephone fixed in the temporary office for the exclusive use of the Institute. The number is: Godstone, Surrey, 126.

SPENCER, CHAPMAN AND MESSEL, LTD., announce that their temporary address is now 90 Cornwall Road, Cheam, Surrey. (Telephone Nos.: Vigilant 1438 and 5237.)

BRITISH GLUE AND CHEMICALS, LTD., have a temporary address at 96 Bridge Road East, Welwyn Garden City, Herts.

The head office of YORKSHIRE TAR DISTILLERS, LTD., is now at the following address: Whitechapel Lane, Cleckheaton, Yorkshire. Telephone Nos.: Cleckheaton 236, 237 and 238. Telegrams: Yotar, Cleckheaton.

THE BRITISH METAL CORPORATION, LTD., is removing its London office to the Grand Hotel, Rugby. (Telephone: Rugby 2002.)

The offices of the INSTITUTE OF PHYSICS have been removed to Reading University, Berks.

E. G. ACHESON, LTD., Thames House, Millbank, London, S.W.1, have decided as an emergency measure to conduct their business from their works office in Plymouth. All correspondence should be directed to E. G. Acheson, Ltd., Prince Rock, Plymouth, Devon, until further advised. Telegraphic address: "Oildag, Plymouth." Telephone: Plymouth 5593. For the time being their London office will be open to receive inquiries and urgent telephone messages.

Arrangements have been made to print and distribute *British Plastics* at the works of the Sidney Press, Ltd., at Bedford, Bedfordshire. All communications dealing with questions relating to editorial, advertisements, subscriptions and circulation should until further notice be addressed to: *British Plastics*, The Sidney Press, Ltd., Sidney Road, Bedford.

THE METHYLATING CO., LTD., 21 St. James's Square, London, S.W.1, have taken accommodation at Great Burgh, Epsom.

ALBRIGHT AND WILSON, LTD., Shell-Mex House, Strand, London, W.C.2, announce that until further notice all communications should be addressed to their works at Oldbury, near Birmingham. The London office is temporarily closed. CLIFFORD CHRISTOPHER AND CO., LTD., have also temporarily closed their London office, and until further notice communications should be addressed to c/o Albright and Wilson, Ltd., Oldbury, near Birmingham.

RONSHIM AND MOORE, Roman Wall House, 1 Crutched Friars, London, E.C.3, announce that as and from Monday, September 18, 1939, their address until further notice will be 4 Anne Boleyn's Walk, Cheam, Surrey. Phone: Vigilant 3911.

HOWARDS AND SONS, LTD., announce that reduction of staff due to service calls makes it difficult for their representatives to pay their usual visits. They would be glad if their friends would kindly send all orders and inquiries for solvents, plasticisers, etc., to their works at Ilford, where they will receive every attention.

The registered office of SOLVENT PRODUCTS, LTD., is now Dagenham Dock, Dagenham, Essex, to which all future communications should be forwarded.

WOLFRAM PRODUCTS AND REFINERIES, LTD., request that all orders and future correspondence should be addressed to the works at 32 Tewin Road, Welwyn Garden City, Herts.

THE PREMIER FILTERPRESS CO., LTD., 120 Moorgate, London, E.C.2, announces that their address for future correspondence will be 96 Woodcote Road, Wallington, Surrey. Telephone No.: Wallington 5840.

For the time being, and until further notice the offices of the BRITISH PLASTICS FEDERATION, LTD., will continue at 11-12 Pall Mall, London, S.W.1. Telephone: Abbey: 6863.

The advertising headquarters of the DUNLOP RUBBER CO., LTD., with Mr. H. W. Eley, advertising manager in charge, have been moved for the time being from St. James's House, London, to Fort Dunlop, Erdington, from where the department will operate until further notice.

## Control of Rayon Prices

### Supply Minister's Decision

THE control of prices of rayon yarns has been undertaken by the Minister of Supply in pursuance of an Order made under the Defence of the Realm Regulations according to an announcement made by the Ministry of Information.

An order has been made which (1) provides that returns shall be made of stocks of raw materials used in the manufacture of rayon or other synthetic fibres dutiable as artificial silk and including staple fibre and the manufacture of transparent cellulose wrapping, and that such further information shall be furnished as may be required in regard to such rayon or the business of the holder thereof.

(2) Fixes maximum prices for the sale of yarns of rayon (defined above) and staple fibre.

Applications for supplies of raw materials which are under the direction of other controls should be made to the Rayon Committee of the Silk and Rayon Association by manufacturers of artificial silk and to the Transparent Cellulose Wrappings Committee by manufacturers of transparent cellulose wrappings and not direct to the respective control.

Particulars of all raw materials used in the manufacture of rayon (as defined above) or transparent cellulose wrappings owned by firms or in their custody on behalf of clients abroad, must be furnished to the Silk and Rayon control on forms which are being sent to the firms concerned.

Attention is also drawn to the fact that the export of certain of the raw materials used in the manufacture of artificial silk, including wood-pulp, cotton linters, sulphuric acid, alcohol and its derivatives, as well as the export of thread and straw of rayon is being prohibited except under licence from the Export Licensing Department of the Board of Trade.

## NON-FERROUS METAL CONTROL

In pursuance of Regulations 55 and 98 of the Defence Regulations, 1939, the Minister of Supply has issued the Control of Non-Ferrous Metals (No. 2) Order, 1939, dated September 7, 1939, under which the schedule of maximum prices attached to the Control of Non-Ferrous Metals Order, 1939, dated September 1, 1939, is cancelled and a revised schedule is substituted therefor. Apart from minor adjustments in the maximum prices specified in the previous Order, the main effect of the revised Order is to clarify the position as regards the premiums or other charges which may be made in accordance with the usual trade practice for deliveries elsewhere than at the points specified.

## TAR HANDLING AND TREATMENT

### Success Dependent on Generator House Operation

AT a recent joint committee conference of the Production and Chemical Committees of the American Gas Association a description of the tar handling facilities and an outline of the tar treatment at the Astoria Plant of the Consolidated Edison Co., of New York, Inc., was contained in a paper presented by Mr. K. B. Weber. The following are extracts from his contribution:—

The equipment for tar handling and treatment at the Astoria plant falls in the customary classifications; separators, condensers, treatment facilities, dehydration apparatus, fuel tanks, mixing tanks, and storage tanks.

The separators are steel tanks of rectangular design, four in number. Each generator house uses two, one for wash box and the other for condenser tar service. Each separator is 90 ft. long, 25 ft. wide, and 9 ft. in depth and is divided into two compartments. The first compartment, which is 22 ft. long, serves as the receiving and tar settling compartment. The second or remainder of the separator receives the overflow from the first and serves as the water compartment for generator house services. The effluents from the wash boxes and condensers are admitted to the tar compartments on to circular plates from below. There are no baffles or partitions other than three skimmers across the direction of flow. The water compartments of all four separators are connected together by a 20 in. diameter header with a valve at each separator. The water compartments are also equipped with steam coils in the bottom and open steam jets, projecting into the water for the necessary heating.

#### Electrical Level Indicator

A small underground concrete tank 25 ft. long, 15 ft. wide and 7 ft. in depth is provided for the collection of the drips of the auxiliary apparatus. Five suitably connected pumps, one a spare, are used for continuous, separate pumping of each separator and for returning any tar which overflows to the water compartment back to the tar compartment. Each tar compartment is equipped with an electrical tar level indicator. The apparatus consists of two units, each an electrical circuit which operates a light through suitable switches and relays. The circuit is actuated by the tar making contact with an electrode which projects into the separator a desired distance. The electrode of each unit is set so that the lights operate to indicate a high or low tar level in the compartment.

Tar is pumped continuously from the tar compartments. The tar is kept from overflowing into the water compartments by suitable pumping rates, a tar depth of approximately 5 ft. being held. The remaining  $3\frac{1}{2}$  ft. of depth is sufficient for the overflow of clean water into the water compartment. A material aid to the operator in maintaining the depth of tar are the electrical tar level indicators, which show at all times whether or not the tar is being pumped at the proper rate.

This arrangement of physically separating the tar from the water where the latter is used for generator house purposes, has eliminated the serious drawback of circulating this water from above the tar as in the separator of usual design.

The temperature of the water for generator house use is kept at the maximum obtainable with the use of exhaust steam on the coils and jets in the water compartment. As an additional aid in separating the tar in the condenser effluent, water from this compartment is circulated through the condenser tar drains. When this means of raising the temperature of the effluent has proved insufficient, water is sometimes pumped from the water compartment on to the plate in the tar compartment mixing with the incoming material. Generally, the water content of the wet tar from the separators ranges from 50-80 per cent.

The tar treatment equipment used depends upon the

storage capacity required for finished tar. Normally three 400,000 gal. steel tanks are used; though for extended periods of peak loads two of the steel tanks have sometimes proved sufficient for the requirements of the plant. Two 375,000 gal. rectangular, underground concrete tanks are also available for treatment or storage.

Each of the steel tanks is equipped with three horizontal, spiral heating coils set 18 in. from the bottom with a heating area of 1.65 sq. ft. per gal. of liquid, two heaters of 315 sq. ft. of heating area each, a transfer and circulating pump, two adjustable sprays, a water drain and tar header with valves spaced two feet apart. A continuous rotary strainer at the inlet of the heaters strains all material coming from the separators.

#### Boiling or Heating Batches

The tar treatment procedure of boiling or heating batches in a processing tank for an extended period of time followed by a period of settling, after which the separated water is drawn off is not practised at the plant.

In the method used, a layer or zone of water above the tar is maintained at all times. The wet tar after heating to 220 to 240° F. is sprayed at a pressure of 20 to 40 lb. in the zone of water above the tar. This zone of water is held at a sufficient height to keep the spray immersed a minimum depth of 1 ft. by controlling the removal of the separated water from the tank by means of the water drain header. The finished tar is pumped from the bottom of the tank, as required. Both the depth of the tar and water zones vary according to separator pumping and tar and water withdrawals from the tank. The only limit of the height of the tar layer is that it must be kept a foot below the spray, so that at all times the wet tar is sprayed into the water. The tar in the tank is further conditioned by reheating and spraying through a second spray. It can be taken from any level desired by use of the aforementioned header. Additional heat treatment of the tar is accomplished by means of the steam coils in the bottom of the tank.

Segregation of tars is practised at the plant to avoid emulsion conditions and as an aid to processing. One treatment of the wet wash box tar reduces the water content sufficiently for boiler use, an average of 25 per cent. water in this tar meeting the demand satisfactorily. In processing this tar, it is worthy of mention that the procedure described has eliminated an exceedingly objectionable characteristic of the method employed previously, *i.e.*, an excessively high viscosity tar. The light oil which previously was boiled off is kept in the tar and burner difficulties and clogging of the air passages of the checker flooring of the boilers have been stopped.

#### Reducing Water Content

If storage demands permit, the condenser tar is processed twice in the manner described, two tanks being used in series. Being more economical in its steam requirements, two tanks for finished condenser tar are used whenever possible. One processing of the tar, however, is usually sufficient to reduce the water content within the capacity of the tar dehydration equipment. The average water content ranges from 10-15 per cent., depending upon load condition.

The principle of passing wet tar through a layer of water has been utilised in the past to process an accumulation of high water tar in the underground, concrete tanks, which formerly were ammoniacal liquor storage tanks. The high water tar in these tanks was treated by simply pumping the material from the bottom after heating, through orifices, and allowing the material to fall through a layer of water above the wet tar.

The plant has two dehydration units; one a redesigned light oil fractionating still, the other a redesigned ammonia liquor still.

The light oil fractionating still designed for distilling benzol, toluol and xylol from light oil was changed by connecting four spiral-coil high pressure steam heaters to the dephlegmator of the still column and connecting the vapour line to a condenser. A decanter for separating the light oil and water evaporated was provided. The heating coil in the still tank was disconnected and vapour tubes of the column were plugged.

The tar is pumped from a supply tank around the vapour tubes of the dephlegmator which serve as a vapour to tar heat exchanger. The tar then passes through the four heaters arranged in series of two each in parallel and into the tenth section or practically the middle of the still column. The tar flows down into the still tank where another pump discharges it to the finished tar tank. The light oil and water are condensed and then separated in the decanter.

The changes to the ammonia liquor still amounted to connecting steam heaters to the column, disconnecting the steam supply into its base and providing the necessary pumps, condenser, and decanter as in the previously described unit. The heaters are in 16 sections, arranged in two parallel bands of eight sections each. The sections are in series; five in a horizontal position followed by three vertical sections. The outlet of each bank is connected into the middle of the still column. Each bank has its individual pump.

Operation is the same as previously mentioned, either or both banks of heaters being used. The process of dehydra-

tion is continuous and as the units can be operated as conditions demand, the heaters of a unit are always run with steam supply at a maximum. An average temperature of the tar entering the column is 260° F. The variable controlling the dehydration is the rate of tar passing through the heaters. This rate is determined by periodic analysis for water content of the tar at the outlet pump. The capacity naturally depends upon the water content of the inlet tar, although on low water content tar, the pumps and condensers have limited the throughput.

These units have processed 1,930,000 gallons of tar during a period of a month from 7 per cent. inlet water to 0.4 per cent. in the finished tar.

This completes the description of the tar handling facilities and outline of the tar treatment of the plant which serve efficiently and economically to produce for sustained period over 90,000 gallons of finished tar per day. It is believed that the tar treatment process described has effected a substantial saving in steam consumption. Lest an impression be fostered that the design of the separators, their operation or the procedure for tar treatment be the sole cause for the successful outcome of tar handling, too much emphasis cannot be made that the efficacy of tar handling begins with and is highly dependent upon generator house operation.

The maintenance of the proper temperature and the establishment of the correct heat balance in the sets for the particular oil used is the foundation upon which the hopes and desires of the tar operator rest. Smooth, consistent operation of heavy oil tar treatment still is dependent as in the days of gas oil enrichment upon the successful and efficient handling of the oil in the generator house.

## The Chemist in the Petroleum Industry

### Sir Frank Smith's Tribute

THE September issue of *The Naft Magazine*, published this week by the Anglo-Iranian Oil Company, Ltd., contains a report of the 14th annual chemical conference of the company held recently at the Research Station at Sunbury. Members of the chemical staff from all centres of the company, together with the company's scientific advisers were among those present.

The conference was opened by Sir Frank Smith, who joined the head office staff of the company this year as adviser on scientific research and development. Sir Frank stressed the importance of the chemical conference and stated that twenty years ago the chemist produced very little from the mixture of hydrocarbons known as oil, but to-day what he was obtaining from those hydrocarbons was very remarkable. Twenty years ahead it would be more remarkable still and, in fact, he thought it could be said with truth that it is the chemist in the petroleum industry who is forecasting the shadow of things to come.

Regretting the unavoidable absence of Mr. Coxon, who was to have suggested to the conference many of the more urgent problems requiring solution, Sir Frank said that about five weeks ago Mr. Coxon and he were in the United States. Before they went he thought he knew fairly well the importance of engineering to the petroleum industry, but he had become more and more impressed while there with the tremendous effect which the engineer has on the industry. There at Sunbury the chemist tried to find some new reaction which would produce a new product, or produce an existing one more cheaply. When he had done so, though the research aspect of the problem was solved from a production standpoint, the problem was not half solved, for so much depended on how the reaction was employed in big scale operations such as those of Abadan or Llandarcy, and that was where the engineer came in. Mr. Coxon and he had been much concerned with a variety of engineering issues arising in relation to catalytic cracking.

Professor Heilbron, chairman of the Advisory Committee,

described some of the investigations and discoveries made during the year and pointed out that it had become clear that still closer co-operation must be maintained between the test-tube chemistry of the research laboratory and the development section, and they hoped that in the near future the latter, which is now so fully occupied with the problems of the refineries, would be enlarged so as to ensure that the laboratory discoveries might be promptly translated to the semi-technical scale.

In connection with the work of their committee, Professor Heilbron continued, Sir Frank had pointed out how very necessary it was that not only should they, as members of the Advisory Research Board, be clear what their objectives were in carrying out a specific investigation, but that they must also make this clear to their directors. They had now drawn up a detailed scheme of research, covering a five-year plan, and in this all the present problems which face the company have been examined. He hoped, however, that not only would the improvements of present processes be carried out during the next five years, but that new developments would be entered on to ensure that the company should maintain its position in the vanguard of knowledge.

Dr. G. H. Smith, representing the Scottish Refineries, said the shale industry was now entering upon a very interesting phase. The various extensions planned some time ago were now in progress. Two further openings had been started into the shale seams, one to the Fraser shale and one to the Durnet shale. There would be a complete retorting works erected and corresponding additions made to the refinery. This new work, which would be the largest in the industry would incorporate several new principles in retorting technique.

Dr. A. E. Dunstan said that in the early years they had discussed only simple matters of testing, but the conference had gradually developed until now it dealt with all problems concerning the scientific and chemical activities of the company.



## Government Work

### No General Issue of Priority Certificates

**T**HE Ministry of Information announced on Tuesday that it is not intended that priority shall be exercised over the whole field of industry.

It is stated that there seems to be some doubt among contractors, firms and others about the method by which priority is being enforced. There will be no general issue of priority certificates in connection with Government work. Such certificates will be issued only where difficulties arise between the competing demands arising from an immediate shortage or non-availability of production capacity, labour, raw materials, transport, etc.

In the case of difficulties arising in the execution of a contract or order, contractors or firms should refer to the Government department concerned in giving the order (or the appropriate Government department in the case of civil industry). If difficulty is found in the supply of raw material which is subject to the control of the Minister of Supply, inquiries should be addressed to the appropriate control.

The following are among the addresses and telephone numbers of the various Controls (in some cases the addresses and telephone numbers are temporary):—

Aluminium: Ministry of Supply, Aluminium Control, Raven Hotel, Castle Street, Shrewsbury (Shrewsbury 2067-8).

Molasses and Industrial Alcohol: Ministry of Supply, Molasses and Industrial Alcohol Control, Great Burgh, Epsom (Burgh Heath 742 and 3470).

Non-ferrous Metals (lead, zinc, tin and copper): Ministry of Supply, Non-ferrous Metals Control, Grand Hotel, 46 Albert Street, Rugby (Rugby 2002-3).

Paper: Ministry of Supply, Paper Control, Great Western Hotel, Station Road, Reading (Reading 3255-6).

Silk and Rayon: Ministry of Supply, Silk and Rayon Control, Union Street Mill, Macclesfield (Macclesfield 3554).

Sulphuric Acid, Sulphate of Ammonia and other Fertilisers: Ministry of Supply, Sulphuric Acid, etc., Control, Lyndale Hotel, 19 Berkeley Square, Bristol (Bristol 228161).

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### CENTRAL EXPORT REGISTER

The National Service Department of the Ministry of Labour is still compiling, through the Institute of Export, a Central Register of Export Executives, which will be used for supplying, both in Government Service and elsewhere, additional requirements for persons with scientific, technical, professional, and higher administrative qualifications. The Minister of Labour, in consultation with the Lord Privy Seal, has appointed an Advisory Council to control the general conduct of the register and, through committees representative of the various professions, to advise and assist in its use.

Enrolment on the Central Register implies that the persons concerned will be prepared to serve on appropriate work and to accept such suitable work as is offered to them, except in so far as they are then already engaged on work of greater importance from the point of view of National Defence. Individuals who volunteer will be expected to accept offers of service made to them on behalf of or through the Government, but regard will and must be had by both sides to the circumstances affecting the volunteer when the offer is made. Enrolment on the register, however, does not mean that any guarantee is given that the services of a particular individual will be called upon by the Government.

British export executives over the age of 35, who are not members of the Institute, but who are resident in the United Kingdom, and would like to register under this scheme, should apply by letter enclosing 1½d. stamp for postage, to the Secretary of the Institute of Export, 11 Aldwych, London, W.C.2, when full details of the scheme will be sent to him.

## Export Restrictions in France

### Many Chemicals Included

**A** DECREE was recently promulgated in France prohibiting the export of a number of articles including chemical manufactures from France to any destination other than Algeria or from Algeria to any destination other than France. The prohibition applies to all goods on French territory at the date of the decree (August 28), even if an export or re-export declaration has been made. Exceptions to the export prohibitions may, however, be authorised by the Minister of Commerce and the Governor-General of Algeria.

The following products of interest to chemical manufacturers are affected by the regulation:—

Nitrate fertilisers; cellulose pulp; ethylic alcohol; phosphate of lime; mica in pieces; natural cryolite; globentile (native magnesium carbonate); fluorspar; sulphur; graphite; mineral tar from the distillation of coal; bituminous schists; petroleum, schist and other mineral oils, including similar products obtained by hydrogenation or by any other synthetic process (crude, motor spirit, refined oils, heavy oils, gas oils, fuel oils, road oils and soft pitches, hand pitches, petroleum coke, petroleum gas, butane, propane and the like in the liquid or gaseous state, paraffin wax, vaseline, lignite wax, and industrial fats prepared with a base of petroleum oil, of petroleum pitch, of natural bitumen, of asphalt, of stearic pitch, or of woolgrease pitch and other saponifiable or saponified products, whatever the proportions of the mixture).

Ammonium sulphate; ammonium phosphate; ammonium nitrate; ammonium carbonate and bicarbonate; other ammonium salts, calcium cyanamide; natural boric acid; bromine; potassium and sodium bromides; chloride of lime; sodium hypochlorite; hypochlorites (other); artificial cryolite; crude iodine; refined iodine; potassium and sodium iodides; compressed and liquified oxygen; hydrogen peroxide; sodium peroxide; white phosphorous; anhydrous alumina; hydrate of alumina; silver salts and organic compounds of silver; gold and platinum salts; platino-cyanide screens; natural barium sulphate; bismuth carbonate; nitrate and salicylate.

Chromium oxides; magnesium; magnesium; artificial carbonate of magnesia; potassium permanganate; kelp ashes; sodium bicarbonate; products obtained directly by the distillation of coal tar; chloroform; ethyl chloride; methyl alcohol; glycerine; phenic acid, crystallised and white, cresols, crude and pure, containing more than 50 per cent. of one of the isomers; trinitrophenols (picric acid) and trinitroxylois; nitro and amido salicylic acids, phthalic acid and anhydride; diphenylamine; diethyl diphenyl-urea, dimethyl diphenyl-urea, aconitine and its salts.

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### BRITISH STANDARD FOR PETROLEUM JELLY

In the series of A.R.P. specifications which the British Standards Institution is preparing at the request of the A.R.P. Department of the Home Office a specification has been included for petroleum jelly. This compound is intended for sealing doors, windows and other cracks in order to make them gas tight. The specification lays down limits for the various properties of the jelly so as to ensure that it will be capable of being applied easily. The specification in question is BS/A.R.P. 12, and it is hoped that it will be immediately adopted by industry, users and manufacturers alike.

A further specification in the same series which affects the oil interests is BS/A.R.P. 22 Mixture for Anti-gas Cloth. This mixture is applied to textiles for the purposes of rendering them impermeable to gas and is made up of lanoline, together with a heavy oil. The detailed properties of the oil suitable for this purpose are set out in full in this specification.

Copies of these British Standards may be obtained from the British Standards Institution, 28 Victoria Street, London, S.W.1, price 3d. post free.

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## New Technical Books

LIFE'S BEGINNING ON THE EARTH, by R. Beutner. London: Chapman and Hall, Ltd. Pp. 222. 12s. 6d.

We know to-day that the evolution of life on earth began with single cells, millions of years ago. What was there before these first living creatures? A lifeless state and then—either a flash that created life, or a gradual development of the preparatory process of life. The author puts forward scientific evidence for the gradual preparation of life. He presents how science to-day understands single life phenomena and the working mechanisms of life. The volume uses chemistry as a key, and takes into account the latest results in virus research, crystalline growth, osmotic pressures and structures, elements of motion.

All forces known to-day that act in living organisms are explained. The book discusses: vital growth and crystallisation—life as carbon's outstanding property—the importance of salt and water for life and growth—and the fundamentals of motion.

A TEXT BOOK ON LIGHT, by A. W. Barton, M.A., Ph.D. London: Longmans, Green and Co., Ltd. Pp. 426. 8s.

In this book geometrical optics is treated as an attempt at a scientific analysis of the power of lenses and mirrors to produce images, and the use of that analysis to improve both the definition of such images and the design of optical instruments in general. The industrial revolution has made the efficient artificial lighting of factories and streets a matter of urgent practical importance, and the scientific attack on these problems is fully dealt with in the chapter on photometry.

The remainder of the book is devoted to answering the question—what is light? The material corpuscular theory is fully dealt with, and it is shown that the death knell of the corpuscular theory is due to the ever widening range of evidence of interference and diffraction, which was obtained at the suggestion of its rival the wave theory. The book concludes with an account of the photo-electric effect and Compton effect, which demand a revival of the corpuscular theory in a new form.

MICRO-DIFFUSION ANALYSIS AND VOLUMETRIC ERROR. By Edward J. Conway. Pp. 306. London: Crosby Lockwood and Son, Ltd. 25s.

This book gives an account of the diffusion principal in analysis, and the applications which have so far been adequately tested in practice. For such methods it is claimed that they save labour, apparatus and time in serial analyses, and can, with some exceptions, be conducted with the accuracy of fine macro work. Part I contains an account of the apparatus and principals used. From the latter further applications of the micro-diffusion technique may be deduced for varying condition and different substances. The description of apparatus includes an account of pipettes, burettes and colorimeters such as have been used in the working out of the various methods. Part II contains a description of methods with the standard absorption apparatus, and in Part III the author has attempted to introduce order into the subject of error in micro-volumetric technique. In doing so, however, he has felt it necessary to consider the subject formally, both for macro and micro-volumes, and in particular from the standpoint of the variable error.

SIMPLE BLUEPRINT READING WITH PARTICULAR REFERENCE TO WELDING AND WELDING SYMBOLS. Pp. 140. Welwyn Garden City: The Lincoln Electric Co., Ltd. 3s. 6d.

While this book has been compiled and published primarily for welders, it contains information of value to anyone concerned with mechanical construction. Its object is to provide information and instruction on the reading of blueprints and drawings. The book affords a basis for study which, together with practice in the actual reading of drawings, will guide the student to proficiency in this important subject.

## PERSONAL NOTES

MR. H. A. CURRAN has joined the board of Hubron Rubber Chemicals, Ltd.

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MR. DAVID ALAN HAMPSHIRE, only son of Mr. F. W. Hampshire, managing director of F. W. Hampshire and Co., Ltd., manufacturing chemists, and Mrs. Hampshire, was married last week to MISS M. FRYER.

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DR. RAYMOND C. PARKER, biologist of the Rockefeller Institute for Medical Research, has been appointed head of a new laboratory, which will operate as a unit of the Biological Division of E. R. Squibb and Sons at New Brunswick, N.J., U.S.A.

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MR. JOHN LYON COLLYER has resigned from the managing directorship of the Dunlop Rubber Company and will shortly return to his native country, the United States. Mr. Collyer has had nearly ten years' of Dunlop service in Great Britain, his first position having been that of works director at Fort Dunlop towards the close of 1929. In 1931 Mr. Collyer was appointed Controller of Manufacture at headquarters and in 1936 he joined the Board with the title "Director of Manufacture." When Sir George Beharrell succeeded to the chairmanship in 1937 Mr. Collyer, together with Mr. C. A. Proctor, was made joint managing director of the company.

## OBITUARY

MR. WILLIAM HENRY TREWARTHA-JAMES, a member of the Institution of Mining and Metallurgy, died recently at his residence, 45 Gloucester Square, Hyde Park, W.2. He was aged 77.

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SIR SPENCER LISTER, Director of the South African Institute for Medical Research, died at Johannesburg last week, aged 63. He was a pioneer in modern bacteriology and he did work of the greatest value in the teaching and study of bacteriology in South Africa. In 1924 he was president of the Associated Scientific and Technical Societies of South Africa.

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MR. DAVID WILLIAM TRAILL CARGILL, who was for many years associated with his brother, Sir John T. Cargill, Bart., on the directorate of the Burmah Oil Company, died recently. Mr. Cargill was a member of the East India firm of merchants, William Milne and Co., Ltd., Glasgow, and was also a director of various other companies including the Consolidated Cotton and Oil Mills, Ltd., and the Jamaica Sugar Estates, Ltd.

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MR. JAMES MCGHIE, who was for many years a lecturer on technical chemistry at the evening classes in the Royal Technical College, Glasgow, died last week. Mr. McGhie had over 40 years' service with the Glasgow Corporation Gas Department, and retired in 1936 from the position of superintendent of the workshops and showrooms of the department. He was a former president of the Scottish Junior Gas Association (Western District).

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DR. GEORGE JAMES ROBERTSON, Senior Lecturer in Chemistry at St. Andrew's University, has died at his home in St. Andrew's, aged 41. Dr. Robertson was educated at Madras College, St. Andrew's, and in the year that he left to join the Army in the Great War he was dux of the school. During the war he served in the 7th Battalion the Gordon Highlanders. He was taken prisoner at Cambrai early in 1918. On being demobilised Dr. Robertson entered St. Andrews University, and gained the degrees of M.A., B.Sc., and Ph.D. He was appointed to the staff of the University Chemistry Department and a short time ago his thesis for the degree of D.Sc., not only won him the degree but the Sykes Medal for the most outstanding thesis submitted.

## General News

FOR THE TIME being the office hours of THE CHEMICAL AGE (Bouverie House, Fleet Street, E.C.4) will be from 9.30 a.m. to 5.0 p.m., from Monday to Friday inclusive.

THE BRITISH ELECTRICAL AND ALLIED MANUFACTURERS' ASSOCIATION announces that the annual dinner arranged for Thursday, November 16, has been cancelled.

THE BRITISH CERAMIC SOCIETY (Pottery Section) announce that owing to the international emergency, it has been decided not to hold any meetings of the pottery section of the Society for the time being.

THE SOCIETY OF DYERS AND COLOURISTS announce that owing to the international situation, the Symposium which should have been held in Manchester on September 21 and 22 next, has been postponed indefinitely.

GUARANTORS to the Empire Exhibition held in Glasgow last year are likely to be called upon to pay 4s. in the £1. Accountants have now completed their returns, and the management committee will meet at an early date to consider the recommendations of the executive committee. A guarantee fund of just over £700,000 was raised in connection with the Exhibition.

AN OUTBREAK of fire occurred at the Newcastle tar works of Thomas Ness and Co., at Blaydon Burn, last week. An explosion occurred in a filling shed where ten men were at work. Barrels were blown into the air, and although Elswick and Gateshead fire brigades succeeded in extinguishing the blaze in two hours, the shed was wrecked and three tar tanks were damaged.

IN VIEW of the restrictions on petrol and diesel oil, commercial vehicle operators have, in many cases, converted their lorries and buses to run on "producer gas." The modern converted vehicle carries a small generator which manufactures a supply of "producer gas" as it goes along. Producer-gas vehicles using this fuel are now putting up performances comparable with those of ordinary oil-engined vehicles.

OWING TO THE continued expansion of their business Wild-Barfield Electric Furnaces, Ltd., announce that they have purchased land for the erection of a modern factory with facilities to enable them to handle the increased output and at the same time improve deliveries. In due course, the entire organisation comprising offices, works, research department and demonstration heat-treatment shop will be transferred, but in view of the present situation, it is not possible at the moment to say when the new works, which will be built as rapidly as possible, will be ready for occupation. In the meantime, therefore, manufacture will continue at their present works but temporary offices have been taken near the site of the new works, to which designs and drawing offices, accounts, sales and executive departments have been transferred. All correspondence should for the time being be addressed to these temporary offices at 2-6 Highwood Avenue, Bushey, Herts. G. W. B. Electric Furnaces, Ltd., their associated company, have also moved their registered offices, accounts, Eternite and Quenching Oil Sales Departments.

## Foreign News

THE NEW RUSSIAN ALUMINIUM WORKS of Kamensk (Urals) has now partly commenced production, while preliminary work has been started on the erection of another aluminium factory at Kandalaksha on the peninsula of Kola.

THE BOARD OF TRADE have been informed that the importation into Southern Rhodesia of bovine tallow, vegetable tallow or oleine from any source is prohibited, except under permit issued by the Minister of Agriculture and Lands.

FIRMS in Estonia are to be allowed to import methanol, to be used in the manufacture of formalin, free of customs duty, subject to permission given by the Ministry for Economic Affairs.

## From Week to Week

A MINISTRY OF SUPPLIES in New Zealand has been appointed to control commodities considered to be essential, but petrol only is to be rationed.

OWING to a sudden rise in the prices of sugar, flour, salt, drugs, and chemicals, the Calcutta police, *The Times* reported last week, have arrested a large number of profiteers. The Bengal Government have announced that the anti-profiteering ordinance will be sternly enforced.

VITAMIN K, or alpha-phyloquinone is a pale yellow crystalline substance isolated by Karrer and co-workers from alfalfa and notable for its antihæmorrhagic action. In a recent account of its properties by Karrer and Geiger (*Helv. Chim. Acta*, 1939, p. 945), it is stated to be photosensitive and to be rapidly decomposed by visible light rays.

PYRIDINE DERIVATIVES with a halogen atom substituted in the 4-position have not been readily accessible in the past. It is now possible to obtain 4-chloro- and 4-bromo-pyridine in yields of 75 and 45 per cent. respectively by the methods recently evolved by Wibaut and Broekman (*Rec. Trav. Chim. Pays Bas*, 1939, No. 7/8, p. 885).

IN THE course of a study of the constituents of tea from Java, W. B. Deijls (*Rec. Trav. Chim. Pays Bas*, 1939, No. 7/8, p. 28) succeeded in isolating three crystalline catechins in the shape of laevo-epicatechin, catechin gallate and 5'-hydroxy catechin. The content of catechin gallate ranged according to the sample between 0.15 and 0.33 per cent.

DR. EDWARD R. WEIDLEIN, director, Mellon Institute, Pittsburgh, U.S.A., has announced the establishment of an industrial fellowship in that institution by the Fleming Manufacturing Co., Providence, R.I. This fellowship will study the design, construction, and operation of oil filters. Dr. Glen O. Ebrey has been appointed to the incumbency of the fellowship.

MALEIC ACID MANUFACTURE.—In connection with the article under the above heading (*THE CHEMICAL AGE*, May 13, 1939), we learn that maleic acid and anhydride are now made from benzene in catalytic converters using mercury boiling under controlled pressure for carrying off the heat developed in the reaction. A general description of the arrangement of this converter is given in U.S. Patent 1,604,739 of Weiss and Downs.

A SERIES of new inorganic phosphorus compounds has been recently investigated by A. M. de Riequelmont (*Annales de Chimie*, 1939, p. 177). Tetrametaphosphinic acid hydrate crystallises with two molecules of water and is obtained by the action of water on phosphonitrile chloride. It is non-hygroscopic. The water of crystallisation is so firmly combined that it can only be driven off by heating under a vacuum of several hundredths of a millimetre of mercury.

ROUGHLY 65 per cent. of the demand for lacquers in Switzerland is supplied to domestic firms according to the best estimates. Fifteen per cent. is supplied by Germany, ten by the United States, and ten by other countries. Ordinary lacquers are supplied almost entirely by domestic firms, whereas imports from the United States now consist of special grades only. Automotive and industrial lacquers constitute about 80 per cent. of the import class which covers lacquers, paints, and varnishes. At present approximately 30 Swiss firms are engaged in the production of lacquers and of these, only 12 are considered of importance.

THE ELECTROLYSIS of many aromatic compounds has been found to be facilitated if pure pyridine is a constituent of the electrolysis solution. Thus by passing a current through benzoic acid dissolved in a mixture of pure pyridine and diethylamine, Fichter and Stenzl (*Helv. Chim. Acta*, 1939, p. 970) isolated a mixture of products including diphenyl, phenyl benzoic acid and 4-phenyl pyridine. Again, in the electrolysis of phenyl acetate acid dissolved in a mixture of methyl alcoholic potash and pure pyridine, one of the principal products was dibenzyl which was isolated in fair yield. In these reactions the function of the pyridine is apparently to prevent the deposition at the anode of amorphous products which might interrupt the electrolysis.

## Weekly Prices of British Chemical Products

THERE is nothing of fresh interest to report for general chemicals. Supplies are extremely difficult to obtain and market quotations are strictly on a nominal basis. Ex-contract commitments are being fulfilled subject to a surcharge to cover war risk insurance, but holders of stocks are refusing offers for new business until the position becomes clarified. In the coal tar section values have risen sharply with quotation irregular. Creosote is unobtainable.

MANCHESTER.—The demand for contract deliveries of the principal heavy chemicals on the Manchester market during the

past week has been maintained on a steady scale, but so far as new bookings are concerned the general price position is largely nominal. A good many sellers continue to hold off the market, but in the case of a number of imported materials prices are sharply higher. With regard to the by-products values are firm throughout the range and in a few instances there is a wide range between sellers' ideas.

GLASGOW.—The Scottish heavy chemical market continues to display marked activity. Business in all branches is brisk as far as limited supplies will permit.

### Price Changes

Rises: Calcium Acetate, Caustic Potash, Lead Acetate, Potassium Prussiate.

### General Chemicals

ACETONE.—£39 to £43 per ton, according to quantity.

ACETIC ACID.—Tech., 80%, £30 5s. per ton; pure 80%, £32 5s.; tech., 40%, £15 12s. 6d. to £18 12s. 6d.; tech., 60%, £23 10s. to £25 10s. MANCHESTER: 80%, commercial, £30 5s.; tech., glacial, £42 to £46.

ALUM.—Loose lump, £8 7s. 6d. per ton d/d; GLASGOW: Ground, £10 7s. 6d. per ton; lump, £9 17s. 6d.

ALUMINIUM SULPHATE.—£7 5s. 0d. per ton d/d Lanes.

AMMONIA, ANHYDROUS.—Spot, 1s. to 1s. 1d. per lb. d/d in cylinders.

AMMONIUM CARBONATE.—£20 per ton d/d in 5 cwt. casks.

AMMONIUM CHLORIDE (see Sal ammoniac).—Firsts, lump, spot, £42 17s. 6d. per ton; d/d address in barrels. Dog-tooth crystals, £35 per ton; fine white crystals, £18 per ton, in casks, ex store. GLASGOW: Large crystals, in casks, £37 10s.

AMMONIUM DICHROMATE.—9½d. per lb. d/d U.K.

ANTIMONY OXIDE.—£68 per ton.

ARSENIC.—Continental material £10 10s. per ton c.i.f., U.K. ports; Cornish White, £12 5s. to £12 10s. per ton f.o.r. mines, according to quantity. MANCHESTER: White powdered Cornish, £15 10s. per ton, ex store.

BARIUM CHLORIDE.—£11 10s. to £12 10s. per ton in casks ex store. GLASGOW: £12 per ton.

BLEACHING POWDER.—Spot, 35/37%, £9 5s. per ton in casks, special terms for contract. GLASGOW: £9 5s. per ton net ex store.

BORAX COMMERCIAL.—Granulated, £16 per ton; crystal, £17; powdered, £17 10s.; extra finely powdered, £18 10s., packed in 1-cwt. bags, carriage paid home to buyers' premises within the United Kingdom in 1-ton lots. GLASGOW: Granulated, £16 per ton in 1-cwt. bags, carriage paid.

BORIC ACID.—Commercial granulated, £28 10s. per ton; crystal, £29 10s.; powdered, £30 10s.; extra finely powdered, £32 10s. in 1-cwt. bags, carriage paid home to buyers' premises within the United Kingdom in 1-ton lots. GLASGOW: Crystals, £29 10s.; powdered, £30 10s. 1-cwt. bags in 1-ton lots.

CALCIUM BISULPHITE.—£6 10s. per ton f.o.r. London.

CALCIUM CHLORIDE.—GLASGOW: 70/75% solid, £5 12s. 6d. per ton ex store.

CHARCOAL, LUMP.—£6 to £6 10s. per ton, ex wharf. Granulated, £7 to £9 per ton according to grade and locality.

CHLORINE, LIQUID.—£13 15s. per ton, seller's tank wagons, carriage paid to buyer's sidings; £19 5s. per ton, d/d in 16/17 cwt. drums (3-drum lots); £19 10s. per ton d/d in 10-cwt. drums (4-drum lots); 4½d. per lb. d/d station in single 70-lb. cylinders.

CHROMETAN.—Crystals, 2½d. per lb.; liquor, £13 per ton d/d station in drums.

CHROMIC ACID.—9d. per lb., less 2½%; d/d U.K.

CHROMIC OXIDE.—11½d. per lb.; d/d U.K.

CITRIC ACID.—1s. 0½d. per lb. MANCHESTER: 1s. 0½d. GLASGOW: B.P. crystals, 1s. 0½d. per lb; less 5%, ex store.

COPPER SULPHATE.—£18 5s. per ton, less 2% in bags. MANCHESTER: £19 per ton f.o.b. GLASGOW: £19 10s. per ton, less 5%, Liverpool in casks.

CREAM OF TARTAR.—100%, £4 12s. per cwt., less 2½%. GLASGOW: 99%, £4 12s. per cwt. in 5-cwt. casks.

FORMALDEHYDE.—£20-£22 per ton.

FORMIC ACID.—85%, in carboys, ton lots, £42 to £47 per ton.

GLYCERINE.—Chemically pure, double distilled, 1,260 s.g., in tins, £3 10s. to £4 10s. per cwt. according to quantity; in drums, £3 2s. 6d. to £3 16s. 0d. Refined pale straw industrial, 5s. per cwt. less than chemically pure.

HYDROCHLORIC ACID.—Spot, 5s. 6d. to 8s. carboy d/d according to purity, strength and locality.

IODINE.—Resublimed B.P., 6s. 9d. per lb. in 7 lb. lots.

LACTIC ACID.—(Not less than ton lots). Dark tech., 50% by vol., £24 10s. per ton; 50% by weight, £28 10s.; 80% by weight, £50; pale tech., 50% by vol., £28; 50% by weight, £33; 80% by weight, £55; edible, 50%, by vol., £41. One ton lots ex works, barrels free.

LEAD ACETATE.—LONDON: White, £31 10s. ton lots; brown, £35. MANCHESTER: White, £38. GLASGOW: White crystals, £30; brown, £1 per ton less.

LEAD NITRATE.—£27 per ton for 1-ton lots.

LEAD, RED.—£32 15s. 0d. 10 cwt. to 1 ton, less 2½% carriage paid. GLASGOW: £31 per ton, less 2½% carriage paid for 2-ton lots.

LITHARGE.—GLASGOW: Ground, £31 per ton, less 2½%, carriage paid for 2-ton lots.

MAGNESITE.—Calcined, in bags, ex works, about £8 per ton.

MAGNESIUM CHLORIDE.—Solid (ex wharf) £5 10s. per ton. GLASGOW: £7 5s. per ton.

MAGNESIUM SULPHATE.—Commercial, £5 10s. per ton, ex wharf.

MERCURY PRODUCTS.—Ammoniated B.P. (white precip.), lump, 6s. 5d. per lb.; powder B.P., 6s. 7d.; bichloride B.P. (corros. sub.), 5s. 8d.; powder B.P., 5s. 1d.; chloride B.P. (calomel), 6s. 2d.; red oxide cryst. (red precip.), 7s. 6d.; levig. 6s. 9d.; yellow oxide B.P. 6s. 10d.; persulphate white B.P.C., 6s. 7d.; sulphide black (hyd. sulph. cum. sulph. 50%), 6s. 6d. For quantities under 112 lb., 1d. extra; under 28 lb., 5d. extra.

METHYLATED SPIRIT.—61 O.P. industrial, 1s. 5d. to 2s. per gal.; pyridinised industrial, 1s. 7d. to 2s. 2d.; mineralised, 2s. 6d. to 3s. Spirit 64 O.P. is 1d. more in all cases and the range of prices is according to quantities.

NITRIC ACID.—Spot, £25 to £30 per ton according to strength, quantity and destination.

OXALIC ACID.—£48 15s. to £57 10s. per ton, according to packages and position. MANCHESTER: £49 to £55 per ton ex store. GLASGOW: £2 9s. per cwt. in casks.

PARAFFIN WAX.—GLASGOW: 3½d. per lb.

POTASH, CAUSTIC.—Solid, £33 5s. to £38 per ton according to quantity, ex store; broken, £40 per ton. MANCHESTER: £47.

POTASSIUM CHLORATE.—£36 7s. 6d. per ton. MANCHESTER: £37 per ton. GLASGOW: 4½d. per lb.

POTASSIUM DICHROMATE.—5½d. per lb. carriage paid. GLASGOW: 5½d. per lb., net, carriage paid.

POTASSIUM CHROMATE.—9d. per lb. d/d U.K.

POTASSIUM IODIDE.—B.P. 6s. 3d. per lb. in 7 lb. lots.

POTASSIUM NITRATE.—Small granular crystals, £24 to £27 per ton ex store, according to quantity.

POTASSIUM PERMANGANATE.—LONDON: 9½d. to 10½d. per lb. MANCHESTER: B.P. 9½d. to 11½d. GLASGOW: B.P. Crystals, 10½d.

POTASSIUM PRUSSIAN.—7d. to 8d. per lb. MANCHESTER: Yellow, 6d. to 6½d.

PRUSSIAN OF POTASH CRYSTALS.—In casks, 6½d. per lb. net, ex store.

SALT CAKE.—Unground, spot, £3 8s. 6d. per ton.

SODA ASH.—Light 98/100%, £5 17s. 6d. per ton f.o.r. in bags.

SODA, CAUSTIC.—Solid, 76/77° spot, £13 10s. per ton d/d station.

SODA CRYSTALS.—Spot, £5 to £5 5s. per ton d/d station or ex depot in 2-cwt. bags.

SODIUM ACETATE.—£19-£20 per ton carriage paid North. GLASGOW: £18 10s. per ton net ex store.

SODIUM BICARBONATE.—Refined spot, £10 10s. per ton d/d station in bags in 1-ton lots. MANCHESTER: £10 15s. GLASGOW: £13 5s. per ton in 1 cwt. kegs, £11 5s. per ton in 2-cwt. bags.

SODIUM BISULPHITE POWDER.—60/62%, £12 10s. to £14 per ton d/d in 2-ton lots for home trade.



**SODIUM CARBONATE MONOHYDRATE.**—£20 per ton d/d in minimum ton lots in 2 cwt. free bags.  
**SODIUM CHLORATE.**—£27 10s. to £32 per ton. GLASGOW: £1 11s. per cwt., minimum 3 cwt. lots.  
**SODIUM DICHROMATE.**—Crystals cake and powder 4½d. per lb. net d/d U.K. with rebates for contracts. GLASGOW: 4½d. per lb., carriage paid.  
**SODIUM CHROMATE.**—4½d. per lb. d/d U.K.  
**SODIUM HYPOSULPHITE.**—Pea crystals, £15 5s. per ton for 2-ton lots; commercial, £11 5s. per ton. MANCHESTER: Commercial, £11; photographic, £15 10s.  
**SODIUM METASILICATE.**—£14 5s. per ton, d/d U.K. in cwt. bags.  
**SODIUM NITRATE.**—Refined, £8 5s. per ton for 6-ton lots d/d. GLASGOW: £1 12s. per cwt. in 1-cwt. kegs, net, ex store.  
**SODIUM NITRITE.**—£18 5s. per ton for ton lots.  
**SODIUM PERBORATE.**—10%, £4 per cwt. d/d in 1-cwt. drums.  
**SODIUM PHOSPHATE.**—Di-sodium, £12 per ton delivered for ton lots. Tri-sodium, £16 10s. per ton delivered per ton lots.  
**SODIUM PRUSSIAN.**—4d. per lb. for ton lots. MANCHESTER: 4½d. to 5d. GLASGOW: 4d.  
**SODIUM SILICATE.**—£8 2s. 6d. per ton.  
**SODIUM SULPHATE (GLAUBER SALTS).**—£3 per ton d/d.  
**SODIUM SULPHATE (SALT CAKE).**—Unground spot, £3 to £3 10s. per ton d/d station in bulk. MANCHESTER: £3 10s.  
**SODIUM SULPHIDE.**—Solid 60/62%, Spot, £11 15s. per ton d/d in drums; crystals, 30/32%, £9 per ton d/d in casks. MANCHESTER: Concentrated solid, 60/62%, £11; commercial, £8 10s.  
**SODIUM SULPHITE.**—Pea crystals, spot, £14 10s. per ton d/d station in kegs.  
**SULPHUR PRECIP.**—B.P., £55 to £60 per ton according to quantity. Commercial, £50 to £55.  
**SULPHURIC ACID.**—168° Tw., £4 11s. to £5 1s. per ton; 140° Tw., arsenic-free, £3 to £3 10s.; 140° Tw., arsenious, £2 10s.  
**TARTARIC ACID.**—1s. 1½d. per lb. less 5%, carriage paid for lots of 5 cwt. and upwards. MANCHESTER: 1s. 1½d. per lb. GLASGOW: 1s. 1½d. per lb., 5%, ex store.  
**ZINC SULPHATE.**—Tech., £11 10s. f.o.r., in 2-cwt. bags.

### Rubber Chemicals

**ANTIMONY SULPHIDE.**—Golden, 7½d. to 1s. 2½d. per lb., according to quality. Crimson, 1s. 6½d. to 1s. 8d. per lb.  
**ARSENIC SULPHIDE.**—Yellow, 1s. 5d. to 1s. 7d. per lb.  
**BARYTES.**—£6 to £6 10s. per ton, according to quality.  
**CADMIUM SULPHIDE.**—2s. 11d. to 3s. 2d. per lb.  
**CARBON BLACK.**—3½d. to 4 1/16d. per lb., ex store.  
**CARBON DISULPHIDE.**—£31 to £33 per ton, according to quantity, drums extra.  
**CARBON TETRACHLORIDE.**—£41 to £46 per ton, according to quantity, drums extra.  
**CHROMIUM OXIDE.**—Green, 11½d. per lb.  
**DIPHENYLGUANIDINE.**—2s. 2d. per lb.  
**INDIA-RUBBER SUBSTITUTES.**—White, 4½d. to 5d. per lb.; dark 3½d. to 4½d. per lb.  
**LAMP BLACK.**—£24 to £26 per ton del., according to quantity. Vegetable black, £35 per ton upwards.  
**LEAD HYPOSULPHITE.**—9d. per lb.  
**LITHOPONE.**—Spot, 30%, £16 10s. per ton, 2-ton lots d/d in bags.  
**SULPHUR.**—£9 to £9 5s. per ton. SULPHUR PRECIP. B.P., £55 to £60 per ton. SULPHUR PRECIP. COMM., £50 to £55 per ton.  
**SULPHUR CHLORIDE.**—5d. to 7d. per lb., according to quantity.  
**VERMILION.**—Pale, or deep, 5s. per lb., 1-cwt. lots.  
**ZINC SULPHIDE.**—£58 to £60 per ton in casks ex store, smaller quantities up to 1s. per lb.

### Nitrogen Fertilisers

**AMMONIUM SULPHATE.**—The following prices have been announced for neutral quality basis 20.6% nitrogen, in 6-ton lots delivered farmer's nearest station up to June 30, 1940: September, £7 5s.; October, £7 6s. 6d.; November, £7 8s.; December, £7 9s. 6d.; January, 1940, £7 11s.; February £7 12s. 6d.; March/June, £7 14s.  
**CALCIUM CYANAMIDE.**—The following prices are for delivery in 5-ton lots, carriage paid to any railway station in Great Britain up to June 30, 1940; September £8 2s. 6d.; October £8 3s. 9d.; November £8 5s.; December, £8 6s. 3d.; January, 1940, £8 7s. 6d.; February £8 8s. 9d.; March £8 10s.; April/June, £8 11s. 3d.  
**NITRO-CHALK.**—£7 10s. 6d. per ton up to June 30, 1940.  
**SODIUM NITRATE.**—£8 5s. per ton for delivery up to June 30, 1940.  
**CONCENTRATED COMPLETE FERTILISERS.**—£11 4s. to £11 13s. per ton in 6-ton lots to farmer's nearest station.  
**AMMONIUM PHOSPHATE FERTILISERS.**—£10 19s. 6d. to £14 16s. 6d. per ton in 6-ton lots to farmer's nearest station.

### Coal Tar Products

**BENZOL.**—At works, crude, 9½d. to 10d. per gal.; standard motor, 1s. 3½d. to 1s. 4d.; 90%, 1s. 4½d. to 1s. 5d., pure 1s. 8½d. to 1s. 9. MANCHESTER: Crude, 1s. 0½d. to 1s. 0½d. per gal.; pure, 1s. 8d. to 1s. 8½d. per gal.; motor grade 1s. 6½d.

**CARBOLIC ACID.**—Crystals, 8d. per lb.; Crude, 60's 1s. 7d. to 1s. 10d.; dehydrated, 1s. 9d. to 2s. per gal., according to specification; Pale, 99/100%, per lb. f.o.b. in drums; crude, 2s. 1d. per gal.  
**CREOSOTE.**—Home trade, 5½d. to 4d. per gal., f.o.r., makers' works; exports 6d. to 6½d. per gal., according to grade. MANCHESTER: 3½d. to 4½d.  
**CRESYLIC ACID.**—97/99%, 2s. 3d. to 2s. 6d.; 99/100%, 2s. 6d. to 2s. 9d. per gal., according to specification. MANCHESTER: Pale, 99/100%, 2s.  
**NAPHTHA.**—Solvent, 90/160, 1s. 6d. to 1s. 7d. per gal.; solvents, 95/160%, 1s. 7d. to 1s. 8d., naked at works; heavy 90/190%, 1s. 1½d. to 1s. 3d. per gal., naked at works, according to quantity. MANCHESTER: 90/160%, 1s. 6d. to 1s. 7½d. per gal.  
**NAPHTHALENE.**—Crude, whizzed or hot pressed, £6 to £6 10s. per ton; purified crystals, £9 per ton in 2-cwt. bags. LONDON: Fire lighter quality, £3 to £4 10s. per ton. MANCHESTER: Refined, £11 to £12.  
**PITCH.**—Medium, soft, 26s. per ton, f.o.b. MANCHESTER: 27s. 6d. f.o.b., East Coast.  
**PYRIDINE.**—90/140%, 17s. 6d. per gal.; 90/160%, 15s.; 90/180%, 3s. to 4s. per gal. f.o.b. MANCHESTER: 13s. to 17s. per gallon.  
**TOLUOL.**—90%, 2s. 1d. to 2s. 2d. per gal.; pure 2s. 6d. to 2s. 7d. MANCHESTER: Pure, 2s. 7d. per gallon, naked.  
**XYLOL.**—Commercial, 2s. 3d. per gal.; pure, 2s. 5d. MANCHESTER: 2s. 5d. per gallon.

### Wood Distillation Products

**CALCIUM ACETATE.**—Brown, £6 15s. to £9 5s. per ton; grey, £8 to £8 5s. MANCHESTER: Grey, £14.  
**METHYL ACETONE.**—40.50%, £32 to £35 per ton.  
**WOOD CREOSOTE.**—Unrefined, 6d. to 8d. per gal., according to boiling range.  
**WOOD NAPHTHA, MISCIBLE.**—2s. 6d. to 3s. per gal.; solvent, 3s. to 3s. 5d. per gal.  
**WOOD TAR.**—£3 to £8 per ton, according to quality.

### Intermediates and Dyes

**ANILINE OIL.**—Spot, 8d. per lb., drums extra, d/d buyer's works.  
**ANILINE SALTS.**—Spot, 8d. per lb. d/d buyer's works, casks free.  
**BENZALDEHYDE.**—1s. 10d. per lb., for cwt. lots, net packages.  
**BENZIDINE, HCl.**—2s. 7½d. per lb., 100% as base, in casks.  
**BENZOIC ACID, 1914 B.P.** (ex toluol).—1s. 11d. per lb. d/d buyer's works.  
**m-CRESOL 98/100%.**—1s. 8d. to 1s. 9d. per lb. in ton lots.  
**o-CRESOL 30/31° C.**—6½d. to 7½d. per lb. in 1-ton lots.  
**p-CRESOL 34/35° C.**—1s. 7d. to 1s. 8d. per lb. in ton lots.  
**DICHLORANILINE.**—2s. 1½d. to 2s. 5½d. per lb.  
**DIMETHYLANILINE.**—Spot, 1s. 7½d. per lb., package extra.  
**DINITROBENZENE.**—7½d. per lb.  
**DINITROCHLOROBENZENE, SOLID.**—£79 5s. per ton.  
**DINITROTOLUENE.**—48/50° C., 8½d. per lb.; 66/68° C., 11d.  
**DIPHENYLAMINE.**—Spot, 2s. 3d. per lb.; d/d buyer's works.  
**GAMMA ACID, Spot, 4s. 4½d. per lb. 100%, d/d buyer's works.**  
**H ACID.**—Spot, 2s. 7d. per lb.; 100%, d/d buyer's works.  
**NAPHTHIONIC ACID.**—1s. 10d. per lb.  
**β-NAPHTHOL.**—£97 per ton; flake, £94 8s. per ton.  
**α-NAPHTHYLAMINE.**—Lumps, 1s. 1d. per lb.  
**β-NAPHTHYLAMINE.**—Spot, 3s. per lb.; d/d buyer's works.  
**NEVILLE AND WINTHER'S ACID.**—Spot, 3s. 3½d. per lb. 100%.  
**o-NITRANILINE.**—4s. 3½d. per lb.  
**m-NITRANILINE.**—Spot, 2s. 10d. per lb. d/d buyer's works.  
**p-NITRANILINE.**—Spot, 1s. 10d. to 1s. 11d. per lb. d/d buyer's works.  
**NITROBENZENE.**—Spot, 4½d. to 5d. per lb., in 90-gal. drums, drums extra, 1-ton lots d/d buyer's works.  
**NITRONAPHTHALENE.**—9½d. per lb.; P.G., 1s. 0½d. per lb.  
**SODIUM NAPHTHIONATE.**—Spot, 1s. 11d. per lb.; 100% d/d buyer's works.  
**SULPHANILIC ACID.**—Spot, 8½d. per lb. 100%, d/d buyer's works.  
**o-TOLUIDINE.**—10½d. per lb., in 8/10 cwt. drums, drums extra.  
**p-TOLUIDINE.**—1s. 10½d. per lb., in casks.  
**m-XYLIDINE ACETATE.**—4s. 3d. per lb., 100%.

### Latest Oil Prices

LONDON.—Further sales in oils were made at prices subject to forthcoming control, but as a rule there was a scarcity of sellers. As from last Monday licences have become necessary to trade in oils which are contained in schedule of recent orders. WOOD OIL was advanced to 144s. 6d. per cwt. in drums, ex wharf, and nominal thereat. ROSIN.—Deliveries of specified grades were not guaranteed and nominally quoted at 35s. per cwt., ex wharf. TURPENTINE was nominally indicated at 75s. per cwt. for American, on spot, including tax, ex wharf, in barrels, without discount. PARAFFIN SCALE was quoted at 24s., 122-124 per cent., spot.

## Inventions in the Chemical Industry

The following information is prepared from the Official Patents Journal. Printed copies of Specifications accepted may be obtained from the Patent Office, 25 Southampton Buildings, London, W.C.2, at 1s. each. The numbers given under "Applications for Patents" are for reference in all correspondence up to the acceptance of the Complete Specification.

### Applications for Patents

THERMOSCOPES.—E. Moessner and H. Lee. 24071.  
 PRODUCTION OF ASBESTOS CEMENT SLATE.—R. T. Nagybatony-Ujlaki Egyesült Iparművek. (Hungary, Oct. 5, '38.) 24291.  
 REFINING VITAMINIFEROUS MATERIALS.—National Oil Products Co. (United States, Aug. 30, '38.) 23771, 23772.  
 COLLOIDAL SULPHUR SOLUTIONS.—T. E. Neesby. 24024.  
 PROCESS FOR PREPARING BINDING AGENTS from hydro-dispersions. B. Neuhof. (Netherlands, May 20.) 24305.  
 CARBON PILE REGULATORS.—F. Newton. 24067.  
 SYNTHETIC RESINS.—Norton Grinding Wheel Co., Ltd. (United States, Aug. 27, '38.) 24140.  
 POLYMERISABLE COMPOUNDS.—Norton Grinding Wheel Co., Ltd. (United States, Aug. 27, '38.) (United States, Nov. 8, '38.) 24141.  
 MANUFACTURE OF ORGANIC COMPOUNDS.—H. C. Olpin, C. S. Argyle and F. Brown. 24035.  
 COLLIMATORS.—Optique et Precision de Levallois. (France, Dec. 1, '38.) 24313.  
 THERMAL MOTORS.—J. Piazza. 24022.  
 ACRYLATE POLYMERS.—Pittsburgh Plate Glass Co. (United States, Aug. 23, '38.) 24210.  
 PRESERVING ACETYLENE GAS.—S. Saito and S. Idei. 24090.  
 MANUFACTURE OF THREADS OF GLASS, ETC.—Soc. Anon. Vetreria Italiana Balzaretto-Modigliani. (Italy, Sept. 17, '38.) 24181.  
 MANUFACTURE OF FLUORANTHENE DERIVATIVES.—Soc. of Chemical Industry in Basle. (Switzerland, Aug. 27, '38.) (Switzerland, Jan. 19.) (Switzerland, Aug. 2.) 24261.  
 MANUFACTURE OF VAT-DYESTUFFS.—Soc. of Chemical Industry in Basle. (Switzerland, Aug. 27, '38.) (Switzerland, Jan. 19.) (Switzerland, Aug. 4.) 24264.  
 METHOD OF CONVERTING HYDROCARBONS.—Standard Oil Development Co. (United States, Jan. 7.) 24167.  
 PROCESS FOR CHLORINATION OF SATURATED ALIPHATIC HYDROCARBONS.—A. H. Stevens (Dow Chemical Co.). 24177.  
 TREATING CELLULOSIC FIBRES, ETC.—A. H. Stevens (Dow Chemical Co.). (Ridbo Laboratories, Inc.). 24174.  
 TREATMENT OF TEXTILES.—Tootal Broadhurst Lee Co., Ltd., H. Corteen, R. P. Foulds and H. Potter. 24129.  
 PORTABLE ABRADING MACHINES.—G. C. Tyce, J. J. L. Murray, and Imperial Chemical Industries, Ltd. 24308.  
 POLYMERISATION OF DIOLIFINES.—Usines de Melle. (France, Sept. 16, '38.) 23865.  
 PRODUCTION OF ORGANIC COLLOIDS.—African Sisal and Produce Co., Ltd., Sir J. Ramsden, C. L. Walsh, and C. S. Townsend. 24462.  
 POLYMERISED ACYLATED COUMARONES.—Armour and Co. (United States, Sept. 2, '38.) 24528.  
 METERING OF LUBRICANT.—Auto Research Corporation. (United States, Aug. 24, '38.) 24424.  
 PROCESS OF BLEACHING, etc., waste products obtained in the production of sulphite pulp, etc.—R. Bellak and W. Bellak. 24608.  
 PREPARATION, ETC., OF CELLULOSIC ESTERS.—R. Charbin. (France, Sept. 19, '38.) 24920.  
 TREATMENT OF TITANIUM ORES.—F. J. Cleveland (Pittsburgh Plate Glass Co.). 24807.  
 DISAZO DYESTUFFS.—W. H. Cliffe, A. H. Knight, F. H. Pearson and Imperial Chemical Industries, Ltd. 24556.  
 BITUMINOUS BASE DISPERSIONS for use in the production of coloured bitumen dispersions.—Colas Products, Ltd., L. G. Gabriel and J. A. Rawlinson. 24535.  
 MANUFACTURE OF POLYMERIC MATERIALS, ETC.—E. I. du Pont de Nemours and Co. (United States, Aug. 26, '38.) 24441.  
 MANUFACTURE OF POLYMERIC SUBSTANCES, ETC.—E. I. du Pont de Nemours and Co. (United States, Aug. 26, '38.) 24611.  
 MANUFACTURE OF HYDROGENATION PRODUCTS.—E. I. du Pont de Nemours and Co. (United States, Aug. 30, '38.) 24770.  
 POLYMERIC QUATERNARY AMMONIUM SALTS from ditertiary diamines and dihalides.—E. I. du Pont de Nemours and Co. (United States, Aug. 30, '38.) 24771.  
 MANUFACTURE OF SYNTHETIC RESIN-LIKE MATERIALS.—B. J. Habgood, E. Isaacs, L. B. Morgan, and Imperial Chemical Industries Ltd. (Sept. 22, '38.) 24558.  
 PROCESS FOR THE ELIMINATION OF IRON from sulphate of alumina, etc.—E. Hayward. 24404.  
 MEANS FOR EFFECTING PRECIPITATION OF COMPOUNDS.—E. Hayward. 24405.  
 PRODUCTION OF UREA-FORMALDEHYDE RESINS.—J. E. H. Hayward and Bakelite, Ltd. 24545.  
 MANUFACTURE OF ACETYL-DE- $\alpha$  TOCOPHENYL.—F. Hoffmann-La Roche and Co., A.G. (Switzerland, Sept. 29, '38.) 24676.  
 METHODS, ETC., FOR WELDING.—Linde Air Products Co. (United States, Dec. 3, '38.) 24861.  
 PREPARATION OF CARBONATE SALTS of calcium and magnesium, etc.—W. McGeorge and F. H. Milner. 24504.

PREPARATION OF SODIUM BICARBONATE, ETC.—W. George and F. H. Milner. 24505.

DYEING PROCESS.—T. C. Nichol and Imperial Chemical Industries, Ltd. 24557.

MANUFACTURE, ETC., OF ORGANIC COMPOUNDS.—H. C. Olpin. 24589.

CHLORINATION OF TITANIUM BEARING MATERIALS.—Pittsburgh Plate Glass Co. (United States, June 30.) 24802, 24803.

MANUFACTURE OF NITRATE OF AMMONIAC.—Soc. Anon. D'Explosifs et de Produits Chimiques. (France, Sept. 6, '38.) 24659.

### Complete Specifications Open to Public Inspection

METHOD OF PRODUCING SOLUBLE BENZYL ETHER OF DEXTRAN.—G. L. Stahly and W. W. Carlson. Feb. 26, 1938. 23112/38.

PROCESS FOR THE HYDROGENATION OF OCTENES.—Universal Oil Products Co. Feb. 25, 1938. 27008/38.

MANUFACTURE OF AMINOMETHYLENE ALDEHYDES.—Naamlooze Vennootschap De Bataafsche Petroleum Maatschappij. Feb. 22, 1938. 1612/39.

EXCHANGE OR ELIMINATION OF ANIONS IN LIQUIDS AND THE ABSORPTION OF GASES.—Auxiliaire des Chemins de fer et de l'Industrie, and G. V. Austerweil. Feb. 22, 1938. 5202/39.

METHODS OF RECOVERING POLYHYDRIC ALCOHOLS FROM AQUEOUS SOLUTIONS OR CONCENTRATES CONTAINING SAME.—Speas Development Co. Feb. 24, 1938. 5340/39.

PLASTICISED HYDROCARBONS.—Armour and Co. Feb. 24, 1938. 5387/39.

PROCESS FOR DYEING CASEIN ARTIFICIAL FIBRE.—H. Dosne. Feb. 28, 1938. 5582/39.

COAGULATION OF PIGMENTS IN SUSPENSION.—E. I. du Pont de Nemours and Co. Feb. 23, 1938. 5798/39.

APPARATUS FOR PASTEURISING AND/OR DEODORISING AND COOLING LACTEAL LIQUIDS UNDER VACUUM.—Murray Deodorisers, Ltd. Feb. 22, 1938. 5898/39.

PROCESS OF DECOMPOSING CRYSTALLISED FERROUS SULPHATE.—P. de Lattre. Feb. 25, 1938. 6075/39.

APPARATUS FOR GASIFYING TOXIC MATERIAL FOR THE STERILISATION OF STORED PRODUCTS.—Gasco Esterilizador Limitada. Feb. 26, 1938. 6453/39.

### Specifications Accepted with Date of Application

MANUFACTURE OF SYNTHETIC RUBBER-LIKE MATERIALS.—B. J. Habgood, L. B. Morgan and Imperial Chemical Industries, Ltd. Nov. 22, 1937. 511,838.

PRODUCTION OF CARBOCYANINE-LIKE DYESTUFFS AND SENSITISING OF PHOTOGRAPHIC SILVER HALIDE EMULSIONS.—N. V. Gevaert Photo-Producten. Nov. 23, 1936. 511,940.

MANUFACTURE OF CONTAINERS AND TUBES COMPRISING ORGANIC THERMOPLASTIC MATERIAL.—Celluloid Corporation. Jan. 22, 1937. 511,844.

TREATMENT OF WOOL AND WOOLLEN MATERIALS.—E. Race, F. M. Rowe, J. B. Speakman and Imperial Chemical Industries, Ltd. Feb. 22, 1938. 511,688.

PRODUCTION OF TITANIUM CARBIDES.—J. P. Leemans and Soc. Generale Metallurgique de Hoboken. Feb. 22, 1938. 511,945.

MANUFACTURE OF ARTIFICIAL SPINNABLE MATERIAL FROM MIXED SOLUTIONS OF PROTEIN AND VISCOS.—A. D'Ambrosio, and A. Corbellini. Feb. 23, 1938. 511,700.

ORGANIC OXIDATION OF FATTY MATTER, AND PROCESS OF PREPARING THE SAME.—J. R. Short Milling Co. Feb. 23, 1937. 511,701.

RESERVOIR OR VAT FOR THE STORAGE OF LIQUIDS, AND HYDROCARBONS IN PARTICULAR.—F. H. Smith. Feb. 24, 1938. 511,860.

APPARATUS FOR DE-GREASING NON-ABSORBENT ARTICLES WITH VOLATILE SOLVENTS.—N. R. Hood, T. H. Meredith and Imperial Chemical Industries, Ltd. Feb. 24, 1938. 512,033.

MANUFACTURE OF CHLORINATED ORGANIC COMPOUNDS.—A. D. Jones, J. S. Watt, and Imperial Chemical Industries, Ltd. Feb. 24, 1938. 511,861.

METHOD AND APPARATUS for the filtration of alkaline solutions containing dissolved precious metal values.—Merrell Co. July 12, 1937. 511,968.

THERMOSTAT.—Metals and Controls Corporation. June 25, 1937. 511,640.

DULCITOL AND MANNITOL BORATES and salts thereof.—Atlas Powder Co. June 23, 1937. 511,641.

CATALYTIC TREATMENT OF HYDROCARBONS.—Standard Oil Development Co. Nov. 19, 1937. 511,730.

CATALYST REGENERATION.—Standard Oil Development Co. March 17, 1938. 511,659.

STABILISING AND PURIFYING CELLULOSE TRIACETATE.—North American Rayon Corporation. Nov. 22, 1937. 511,822.

INGREDIENTS FOR THE MANUFACTURE OF COSMETICS.—F. Atkins and Tokalon, Ltd. Jan. 3, 1939. 511,827.

## Commercial Intelligence

The following are taken from printed reports, but we cannot be responsible for errors that may occur.

### Mortgages and Charges

(Note.—The Companies Consolidation Act of 1908 provides that every Mortgage or Charge, as described therein, shall be registered within 21 days after its creation, otherwise it shall be void against the liquidator and any creditor. The Act also provides that every company shall, in making its Annual Summary, specify the total amount of debt due from the company in respect of all Mortgages or Charges. The following Mortgages and Charges have been so registered. In each case the total debt, as specified in the last available Annual Summary, is also given—marked with an \*—followed by the date of the Summary, but such total may have been reduced.)

**BRITISH CONTROLLED OILFIELDS, LTD.** (incorporated in Canada). (M.C., 16/9/39.) Aug. 29, £2,000 mort., to E. E. Robb, London, and another; charged on Spring Grove, Sunningdale.

**HECKINGTON GAS CO., LTD.** (M.C., 16/9/39.) Aug. 31, £2,000 (not ex.) deb. to E. Palmer, Leeds, and another; general charge \*£1,400. June 16, 1939.

**MANCHESTER OIL REFINERY, LTD.**, London, E.C. (M.C., 16/9/39.) Sept. 1, £290,000 1st deb. stock secured by Trust Deed dated Aug. 23, 1939; general charge (subject, etc.). \*£352. Sept. 21, 1938.

### Declaration of Solvency Filed

**J. W. SIMPSON (CHEMIST), LTD.** (formerly Simpson's Iodines, Ltd.). (D.S.F., 16/9/39.) London, W.C. Sept. 6.

### Companies Winding Up Voluntarily

**BRITISH HYDROGENATION LTD.** (C.W.U.V., 16/9/39.) General meeting of members at 28 Grosvenor Place, Westminster, S.W.1, on Tuesday, October 17; H. W. Hembry, liquidator.

## Company News

**The Scottish Power Co.** have declared an interim dividend of 2½ per cent., less tax (same), payable on October 2.

**G.P.K. Chemicals, Ltd.**, 5-11 Theobalds Road, W.C.1, have changed their name to **Luna Products, Ltd.**, on August 31, 1939.

**Beechams Pills, Ltd.**, have declared a first interim dividend for the year ending March 31, 1940, of 6 per cent. on the deferred shares payable on September 30.

**The British Oxygen Co.** has acquired the whole of the capital of **Coxeter and Son, Ltd.**, and the **Condensed Gas Co.**, in exchange for shares in the **British Oxygen Co.**

**Thorncroft Coal Distillation**, which is controlled by **Newton, Chambers & Co., Ltd.**, report a profit for the year, after depreciation and tax, of £18,794. The carry-forward is £15,280 against £19,300 brought in.

## Chemical and Allied Stocks and Shares

**B**USINESS in the stock and share markets, which is restricted to a cash basis, has continued to be largely a matter of negotiation, and movements in share values cannot be regarded as indicating views as to the prospects of individual companies. With markets in their present inactive state the tendency is for moderate demand to result in a sharp marking up of prices, and until the details of the supplementary Budget are known and sufficient time has elapsed to permit the full significance of war-time legislation to be assessed, it is unlikely that much increase of activity will be shown on the Stock Exchange.

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On balance movements in the majority of shares of leading companies connected with the chemical and allied trades have been in favour of holders. **Imperial Chemical** were higher at 31s. 3d. and the company's preference units were better at 28s. 3d. **United Molasses** improved to 25s. 9d., attention being drawn to the importance of the company's tanker fleet. **Lever** and **Unilever** had a steadier appearance, and **British Oil** and **Cake Mills** preferred ordinary continued to have a "middle" quotation of 38s. 9d. **Fison Packard** were quoted at 40s. and **B. Laporte** at 57s. 6d., but they were without recorded business. **British Oxygen**, **Turner** and **Newall**, **British Aluminium** and various other heavily-priced shares had a steadier appearance in sympathy with the general market tendency. On the other hand **Triplex Glass** declined sharply. **Distillers** were fairly steady, as were **Associated Cement** and other cement shares, while **British Plaster Board** were 27s. The market is doubtful if, in view of the changed conditions resulting from the war, the directors of the last-named company will bring forward the capital and bonus proposals foreshadowed at the last annual meeting.

## New Companies Registered

**Wm. Hoyle and Sons, Ltd.** 355,517.—Private company. Capital £1,500 in 1,500 shares of £1 each. To acquire the business of soap and chemical manufacturers carried on by **Robert Hoyle, Alfred Hoyle, Nancy Taylor, Ellen J. Parkinson** and **Margaret Horne**, as "William Hoyle and Sons," at the **West Lancashire Soap Works**, Haslingden, Lancs. **Arthur F. Redford**, 55 Devonshire Road, Bolton; **Mrs. Maggie Redford**; **Arthur K. Redford**. Registered office: The **West Lancashire Soap Works**, Broadway, Haslingden.

**Carboscale, Ltd.** 355,639.—Private company. Capital £100 in 100 shares of £1 each. To acquire from **W. P. O'Callaghan, J. MacInnes** and **R. Harkness**, the benefit of a certain invention relating to means for preventing corrosion or the deposition of scale or other solid matter on or in boilers, pipes, furnaces and other articles; and to carry on the business of manufacturing chemists, manufacturers of and dealers in chemicals of all kinds, etc. Directors: **William P. O'Callaghan**, 7 Myrtle Road, Stockton-on-Tees; **John MacInnes**, **Robert Harkness**.

**Special Testing Works, Ltd.** 355,744.—Private company. Capital £2,000 in 2,000 shares of £1 each. To carry on the business of testing, assaying, certifying, consulting or advising in connection with the production, manufacture, supply, utilisation, description, quality, grading or classifying of special steels, alloy steels, stainless, rustless or other steels, and chemicals; manufacturers of and dealers in weighing and measuring instruments, etc. Directors: **Bennett Beardshaw**, 456 Abbey Lane, Sheffield; **Mrs. Grace Beardshaw**, **Alan K. Beardshaw**, **Douglas Beardshaw**.

**Panolea (Proprietary), Ltd.** (F.3566).—The capital is £2,500 in 2,500 shares of £1 each. The company was registered in Pretoria, Union of South Africa, on July 26, 1939, to manufacture sulphurised and oxydised animal, vegetable and mineral oils and chemical products for the use of tanneries and other industries, to acquire the machinery, inventions and devices of **Goldberg & Sidas**, specialised in the manufacture of chemical products in Poland. The registered office is in the Transvaal Province. British address: **Milton House**, 8-9 Chiswell Street, E.C., where **Stephan R. Haas** is authorised to accept service of process and notices on behalf of the company. Directors: **Dr. Victor Haas**, 149 Commissioner Street, Johannesburg; **Frederick Haas**, 8-9 Chiswell Street, E.C.; and **Dr. Stephan R. Haas**.

**Wall Colmonoy (Canada).** (F.3562).—Capital stock is 40,000 dollars in 4,000 shares of 10 dollars each. The company was registered in Canada on April 3, 1939, to manufacture and deal in gases, chemicals, welding rods and supplies, metallic alloys, electric furnace products such as calcium carbide, silicon carbide, ferro alloys and by-products, machinery, etc. The head office is at Windsor, Canada. The British address is at 3 Regent Street, S.W.1. **Bertram F. Day**, of 3a Fitzroy Lodge, The Grove, Highgate, N.6, is authorised to accept service of process and notices on behalf of the company. The directors are: **Albert F. Wall**, 2435 Edison Avenue, Detroit, Mich., U.S.A. (director of **Wall Chemicals, Ltd.**, and **Carbo Ice (Ont.), Ltd.**); **Thomas W. Whiteside**; and **Theodore E. Rich**.

Very little attention was given to iron and steel securities, but **Guest Keen** were firmer at 23s. 9d. On the other hand, textile shares were in moderate request earlier in the week, and both **Courtaulds** and **British Celanese** moved in favour of holders, as did some of the smaller-priced cotton textile issues, **Bradford Dyers** having risen on balance from 3s. 1½d. to 4s. 7½d., and **Bleachers** from 2s. 6d. to 3s. 3d., sentiment being assisted by the assumption that turnover in the textile trades should show some improvement as a result of work of national importance.

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**British Match** at 34s. were within 4½d. of the price current a week ago, and **Imperial Smelting** were slightly better on balance at 9s. 9d. Companies connected with the retail and kindred trades were inclined to make lower prices in the absence demand, sentiment being affected by fears of higher taxation and rising costs, while it is also difficult to assess spending power in most areas of the country. **Boots Drug** were around 42s., **Sangers** 20s., and **Timothy Whites** 21s. and **Beechams Pills** deferred 7s. 6d.

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Elsewhere **Wall Paper**, deferred were better at 22s. 6d. and **Cerebos** at £8½ and **Reckitt and Sons** at 102s. 6d. were maintained in price. **General Refractories** continued to be quoted at 7s. 6d. **Richard Thomas** shares and debentures have been maintained, aided by the impression created by the statements at the meeting. Prices of leading oil shares responded sharply to moderate demand. **Burmah Oil** were 66s. 3d., compared with 65s. a week ago; **Trinidad Leaseholds** 87s. 6d., compared with 86s. 3d., while "Shell" rallied from 83s. 9d. to 88s. 9d. **Valor** ordinary shares transferred around 20s. at one time.



